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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/852,616	05/11/2001	Thomas G. Lang		5341

7590 05/10/2004  
James C. Wray  
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1493 Chain Bridge Road  
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EXAMINER

VASUDEVA, AJAY

ART UNIT PAPER NUMBER

3617

DATE MAILED: 05/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/852,616

Applicant(s)

LANG ET AL.

Examiner

Ajay Vasudeva

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-223 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 1-144 and 152-223 is/are allowed.
- 6) ☐ Claim(s) 145-147, 149 and 150 is/are rejected.
- 7) ☐ Claim(s) 148 and 151 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claims 145, 146, 149-151 are objected to because of the following informalities:

In the claims, the applicant is advised to amend the phrase "saw-tooth-like shape" (emphasis added) to -- saw-tooth-shape -- so that the metes and bounds of the claim are clearly defined.

It is noted that use of the word "like" in the limitation "saw-tooth-like shape" makes it a much broader and non-specific limitation than the "saw-tooth-shaped" limitation, and encompasses those shapes which may only remotely resemble a shape, which itself in turn is only partly like a "saw tooth". A "saw-tooth-like shape" is not necessarily similar to a "saw-tooth shape".

Appropriate correction is required. No new matter should be entered.

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 145-147 and 149-150 are rejected under 35 U.S.C. 102(b) as being anticipated by Wipper.

Wipper describes a method of providing a closed gas cavity across channels [124] (figure 6), which together with the longitudinally extending ribs [128] constitute a single underwater surface [124, 128], and together assume a non-planar saw-tooth shaped profile

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(figure 6A). This underwater surface, in its cross-section, would project a similar saw-tooth shaped profile. Wipper further describes the method including the steps of forming a gas cavity on the surface (col. 8, line 35), and providing a closure in a cavity closure region (col. 8, line 38). It may be noted that the entire rear-half section of the underwater surface is considered as constituting the cavity closure region. Applicant's attention is drawn to figure 6A and 6B, which shows a single cavity [132] extending over as well as across the entire underwater surface, which includes the channels as well as the ribs.

The ribs form a series of parallel ridges, and the channels form a series of parallel grooves, both of which are within 30 degrees of the water flow. The height of the ridges is less than the maximum cavity thickness at approximately the mid-point of the underwater surface, which is ahead of the cavity closure region.

Although the instant application has been granted the benefit of the earlier filing date as it repeats a substantial portion of prior Applications, the above rejected claims constitute such added matter which was not presented in the prior application. Therefore, claim 145 is not entitled to the filing date of the U.S. parent, and its effective filing date is the filing date of the CIP.

***Allowable Subject Matter***

3. Claims 1-144, and 152-223 are allowed.
4. Claims 148 and 151 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

5. Applicant's arguments filed 2/09/2004 have been fully considered but they are not persuasive.

***Regarding the 102(b) rejection of claims 145-147 and 149-150 based on Wipper.***

Applicant's Argument: Applicant acknowledged that Wipper reference shows ribs 68, 84 and 126 as small widely spaced triangular shaped cross-sections, but argued that it does not show a saw tooth profile. The applicant further argued that the wide spacing of ribs 68 in Figure 2, 84 in Figure 3 and 126 in Figure 6 leads away from "saw-tooth-like shapes" in claims 145-151.

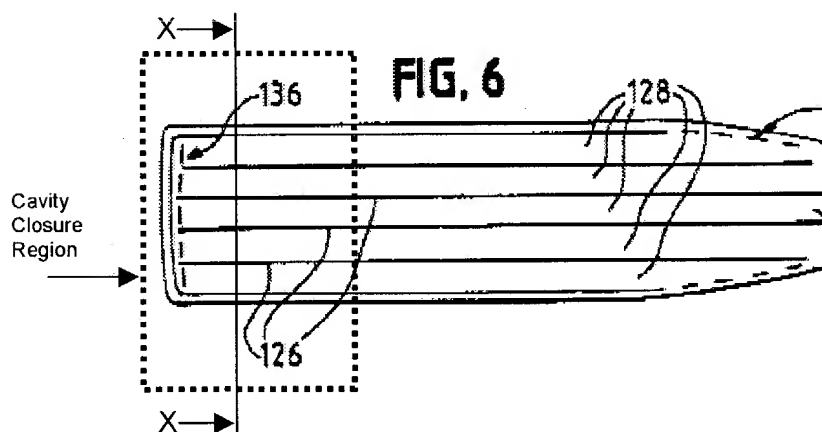
Examiner's Response: Firstly, it is noted that the applicant has used a "saw-tooth-like shape" limitation in the claims, and not a "saw-tooth-shaped" or a "saw-tooth profile" limitation, as being argued. A use of the word "like" in the limitation "saw-tooth-like shape" makes it a much broader and non-specific limitation than the "saw-tooth-shaped" limitation, and encompasses those shapes which may only remotely resemble a shape which itself in turn is only partly like a "saw tooth". A "saw-tooth-like shape" is not necessarily similar to a "saw-tooth shape".

Secondly, Wipper shows a plurality of widely spaced ribs having triangular shaped cross-sections, as also acknowledged by the applicant in the arguments. The triangle shaped cross-section of each individual rib is similar to a single individual tooth of a saw tooth shape, even though the triangle shaped cross-sections of the plurality of ribs are not contiguous with each other. Therefore, each of the plurality of non-contiguous "teeth" of Wipper is considered as resembling a "tooth" of a saw-tooth profile, and meets the limitation "a series of substantially symmetrical saw-tooth-like shapes" of the claim.

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Applicant's Argument: Wipper does not show a cavity closure region, or a series of substantially symmetrical saw-tooth-like shapes on the surface in a cross section of the cavity closure region.

Examiner's Response: The following annotations clearly define the Examiner interpretation of a cavity closure region, and the saw-tooth-like shapes formed in a cross section X-X of the cavity closure region. The Examiner notes that no specific boundary has been attributed to the "cavity closure region" in the claim, and therefore, the Examiner has used own broad interpretation to define an imaginary boundary as the cavity closure region, as shown below.



Applicant's Argument: Applicant argues that Figure 3 illustrates "... ribs 84 extending from the bow to the stern of the vessel." (col. 7, lines 37-38) Ribs 68 and 126 in Wipper are shown extending bow to stern.

Examiner's Response: Applicant's argument is not understood because its intended purpose is not clear.

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Applicant's Argument: Applicant describes the purpose of the ridges as "to direct the splash sideward and rearward instead of directly forward, thus reducing disturbances at cavity closure.", which is not shown by Wipper.

Examiner's Response: The limitation, as being argued, is not present in the rejected claims.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Savill (630) shows a boundary layer modification system having ribs.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ajay Vasudeva whose telephone number is (703) 306-5992. The examiner can normally be reached on Monday-Friday 1:00 pm--5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, S. Joe Morano can be reached on (703) 308-0230. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
AV

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